

Claims:

1. A process for preparing (meth)acrylic acid copolymers, which comprises the following process steps:
  - 5 (1) free-radical polymerization of (meth)acrylic acid, a polymer I resulting, and
  - (2) amidation of the polymer I resulting from process step (1) by reaction with at least one aminoalkanesulfonic acid.
- 10 2. A process according to claim 1, wherein process step (1) is carried out at temperatures of from 100 to 200°C.
- 15 3. A process according to claim 1 or 2, wherein process step (2) is carried out at temperatures from 140 to 250°C.
4. A process according to one of claims 1 to 3, wherein the molar ratio of monomers in polymer I to aminoalkanesulfonic acid is from 15:1 to 2:1.
- 20 5. A (meth)acrylic acid copolymer which is obtainable by a process according to one of claims 1 to 4.
6. A (meth)acrylic acid copolymer according to claim 5 which comprises
  - 25 (b) from 30 to 95% by weight of a poly(meth)acrylic acid basic framework,
  - (c) from 5 to 70% by weight of amide units based on aminoalkylsulfonic acids,
- 30 the total weight of the units in the sulfonated polymer being 100% by weight and all weights being based on the sulfonated polymer.
7. A (meth)acrylic acid copolymer according to claim 5 or 6, wherein the weight-average molecular weight of the sulfonated polymer is from 1000 to 35 20 000 g/mol.
8. A process for stabilizing phosphates and/or phosphonates and/or zinc ions in aqueous systems, which comprises adding to the system a polymer according to one of claims 5 to 7.

9. The use of (meth)acrylic acid copolymers according to one of claims 5 to 7 for water treatment, scale inhibition in petroleum production and/or corrosion inhibition in aqueous systems.
- 5    10. A formulation for water treatment, scale inhibition in petroleum production and/or corrosion inhibition, comprising (meth)acrylic acid copolymers according to one of claims 5 to 7.